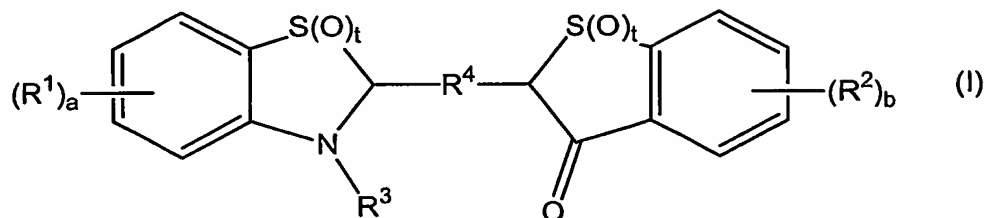


## WHAT IS CLAIMED IS:

1. The use of a compound of formula (I):



wherein:

each  $t$  is independently 0, 1 or 2;

$a$  is 1 to 4;

$b$  is 1 to 4;

each  $R^1$  and each  $R^2$  is independently selected from the group consisting of hydrogen, alkyl, alkenyl, aryl, aralkyl, aralkenyl, halo, haloalkyl, haloalkenyl, nitro, cyano, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclylalkyl,  $-OR^5$ ,  $-C(O)OR^5$ ,  $-C(O)N(R^5)_2$ ,  $-N(R^5)_2$ ,  $-N(R^5)C(O)OR^6$ ,  $-N(R^5)C(O)R^5$ ,  $-R^7-N=N-O-R^6$ ,  $-S(O)_pR^5$  (where  $p$  is 0 to 2), and  $-S(O)_pN(R^5)_2$  (where  $p$  is 0 to 2);

$R^3$  is hydrogen, alkyl, alkenyl, aryl, aralkyl, aralkenyl, haloalkyl, haloalkenyl, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclylalkyl,  $-C(O)R^5$ ,  $-C(O)N(R^5)_2$ ,  $-S(O)_pR^5$  (where  $p$  is 0 to 2), or  $-S(O)_pN(R^5)_2$  (where  $p$  is 0 to 2);

$R^4$  is a straight or branched alkylene or alkenylene chain containing 1 to 4 carbon atoms, wherein each carbon in the chain can be replaced by a heteroatom selected from nitrogen, oxygen and sulfur, and wherein each carbon or sulfur atom in the chain can be optionally oxidized, and wherein each carbon in the chain can be optionally substituted by one or two substituents independently selected from the group consisting of hydrogen, alkyl, alkenyl, aryl, aralkyl, aralkenyl, halo, haloalkyl, haloalkenyl, nitro, cyano, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclylalkyl,  $-OR^5$ ,  $-C(O)OR^5$ ,  $-C(O)N(R^5)_2$ ,  $-N(R^5)_2$ ,  $-N(R^5)C(O)OR^6$ ,  $-N(R^5)C(O)R^5$ ,  $-R^7-N=N-O-R^6$ ,  $-S(O)_pR^5$  (where  $p$  is 0 to 2), and  $-S(O)_pN(R^5)_2$  (where  $p$  is 0 to 2), and each nitrogen in the chain can be optionally substituted by alkyl, alkenyl, aryl, aralkyl, aralkenyl, haloalkyl, haloalkenyl, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclylalkyl,  $-C(O)R^5$ ,  $-C(O)N(R^5)_2$ ,  $-S(O)_pR^5$  (where  $p$  is 0 to 2), and  $-S(O)_pN(R^5)_2$  (where  $p$  is 0 to 2);

each  $R^5$  is independently selected from the group consisting of hydrogen, alkyl, alkenyl,

haloalkyl, haloalkenyl, aryl, aralkyl, aralkenyl, cycloalkyl, cycloalkylalkyl and cycloalkylalkenyl;

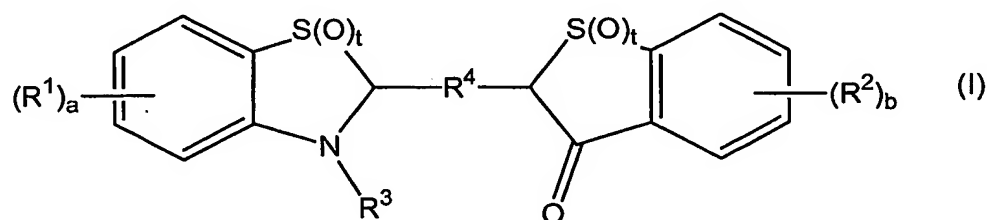
each  $R^6$  is independently selected from the group consisting of hydrogen, alkyl, alkenyl, haloalkyl, haloalkenyl, aralkyl, aralkenyl, cycloalkyl, cycloalkylalkyl and cycloalkylalkenyl;

$R^7$  is a bond or a straight or branched alkylene or alkenylene chain;

as a single stereoisomer, a mixture of stereoisomers, or as a racemic mixture of stereoisomers; or as a solvate or polymorph; or as a pharmaceutically acceptable salt thereof;

for the treatment of cancer in a mammal.

2. The use of a compound of formula (I):



wherein:

each  $t$  is independently 0, 1 or 2;

$a$  is 1 to 4;

$b$  is 1 to 4;

each  $R^1$  and each  $R^2$  is independently selected from the group consisting of hydrogen, alkyl, alkenyl, aryl, aralkyl, aralkenyl, halo, haloalkyl, haloalkenyl, nitro, cyano, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclylalkyl,  $-OR^5$ ,  $-C(O)OR^5$ ,  $-C(O)N(R^5)_2$ ,  $-N(R^5)_2$ ,  $-N(R^5)C(O)OR^6$ ,  $-N(R^5)C(O)R^5$ ,  $-R^7-N=N-O-R^6$ ,  $-S(O)_pR^5$  (where  $p$  is 0 to 2), and  $-S(O)_pN(R^5)_2$  (where  $p$  is 0 to 2);

$R^3$  is hydrogen, alkyl, alkenyl, aryl, aralkyl, aralkenyl, haloalkyl, haloalkenyl, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclylalkyl,  $-C(O)R^5$ ,  $-C(O)N(R^5)_2$ ,  $-S(O)_pR^5$  (where  $p$  is 0 to 2), or  $-S(O)_pN(R^5)_2$  (where  $p$  is 0 to 2);

$R^4$  is a straight or branched alkylene or alkenylene chain containing 1 to 4 carbon atoms, wherein each carbon in the chain can be replaced by a heteroatom selected from nitrogen, oxygen and sulfur, and wherein each carbon or sulfur atom in the chain can be optionally oxidized, and wherein each carbon in the chain can be optionally substituted by one or two substituents independently selected from the group consisting of hydrogen, alkyl, alkenyl, aryl, aralkyl, aralkenyl, halo, haloalkyl, haloalkenyl, nitro, cyano, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclylalkyl,  $-OR^5$ ,  $-C(O)OR^5$ ,  $-C(O)N(R^5)_2$ ,  $-N(R^5)_2$ ,

$-N(R^5)C(O)OR^6$ ,  $-N(R^5)C(O)R^5$ ,  $-R^7-N=N-O-R^6$ ,  $-S(O)_pR^5$  (where  $p$  is 0 to 2), and  $-S(O)_pN(R^5)_2$  (where  $p$  is 0 to 2), and each nitrogen in the chain can be optionally substituted by alkyl, alkenyl, aryl, aralkyl, aralkenyl, haloalkyl, haloalkenyl, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclylalkyl,  $-C(O)R^5$ ,  $-C(O)N(R^5)_2$ ,  $-S(O)_pR^5$  (where  $p$  is 0 to 2), and  $-S(O)_pN(R^5)_2$  (where  $p$  is 0 to 2);

each  $R^5$  is independently selected from the group consisting of hydrogen, alkyl, alkenyl, haloalkyl, haloalkenyl, aryl, aralkyl, aralkenyl, cycloalkyl, cycloalkylalkyl and cycloalkylalkenyl;

each  $R^6$  is independently selected from the group consisting of hydrogen, alkyl, alkenyl, haloalkyl, haloalkenyl, aralkyl, aralkenyl, cycloalkyl, cycloalkylalkyl and cycloalkylalkenyl;

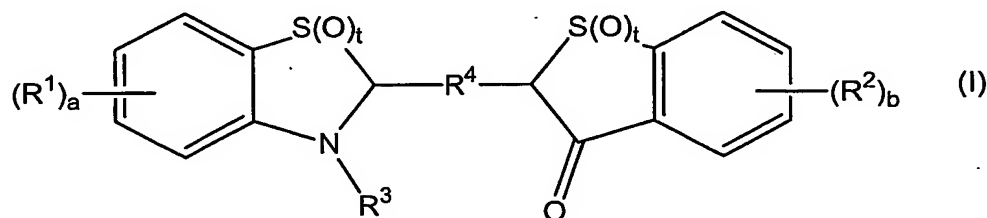
$R^7$  is a bond or a straight or branched alkylene or alkenylene chain;

as a single stereoisomer, a mixture of stereoisomers, or as a racemic mixture of stereoisomers; or as a solvate or polymorph; or as a pharmaceutically acceptable salt thereof; for treating inflammation in a mammal.

3. The use according to any one of Claim 1 or 2 wherein the cancer or inflammation is associated with hyperproliferation or tissue remodelling or repair.

4. The use according to any one of Claim 1 or 2 wherein the cancer or inflammation is associated with the activity of an enzyme selected from the group consisting of PTPN12 and PTPN2.

5. The use of a compound of formula (I):



wherein:

each  $t$  is independently 0, 1 or 2;

$a$  is 1 to 4;

$b$  is 1 to 4;

each  $R^1$  and each  $R^2$  is independently selected from the group consisting of hydrogen,

alkyl, alkenyl, aryl, aralkyl, aralkenyl, halo, haloalkyl, haloalkenyl, nitro, cyano, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclylalkyl,  $-OR^5$ ,  $-C(O)OR^5$ ,  $-C(O)N(R^5)_2$ ,  $-N(R^5)_2$ ,  $-N(R^5)C(O)OR^6$ ,  $-N(R^5)C(O)R^5$ ,  $-R^7-N=N-O-R^6$ ,  $-S(O)_pR^5$  (where p is 0 to 2), and  $-S(O)_pN(R^5)_2$  (where p is 0 to 2);

$R^3$  is hydrogen, alkyl, alkenyl, aryl, aralkyl, aralkenyl, haloalkyl, haloalkenyl, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclylalkyl,  $-C(O)R^5$ ,  $-C(O)N(R^5)_2$ ,  $-S(O)_pR^5$  (where p is 0 to 2), or  $-S(O)_pN(R^5)_2$  (where p is 0 to 2);

$R^4$  is a straight or branched alkylene or alkenylene chain containing 1 to 4 carbon atoms, wherein each carbon in the chain can be replaced by a heteroatom selected from nitrogen, oxygen and sulfur, and wherein each carbon or sulfur atom in the chain can be optionally oxidized, and wherein each carbon in the chain can be optionally substituted by one or two substituents independently selected from the group consisting of hydrogen, alkyl, alkenyl, aryl, aralkyl, aralkenyl, halo, haloalkyl, haloalkenyl, nitro, cyano, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclylalkyl,  $-OR^5$ ,  $-C(O)OR^5$ ,  $-C(O)N(R^5)_2$ ,  $-N(R^5)_2$ ,  $-N(R^5)C(O)OR^6$ ,  $-N(R^5)C(O)R^5$ ,  $-R^7-N=N-O-R^6$ ,  $-S(O)_pR^5$  (where p is 0 to 2), and  $-S(O)_pN(R^5)_2$  (where p is 0 to 2), and each nitrogen in the chain can be optionally substituted by alkyl, alkenyl, aryl, aralkyl, aralkenyl, haloalkyl, haloalkenyl, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclylalkyl,  $-C(O)R^5$ ,  $-C(O)N(R^5)_2$ ,  $-S(O)_pR^5$  (where p is 0 to 2), and  $-S(O)_pN(R^5)_2$  (where p is 0 to 2);

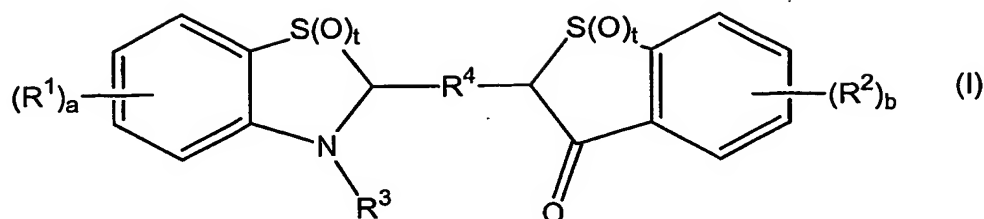
each  $R^5$  is independently selected from the group consisting of hydrogen, alkyl, alkenyl, haloalkyl, haloalkenyl, aryl, aralkyl, aralkenyl, cycloalkyl, cycloalkylalkyl and cycloalkylalkenyl;

each  $R^6$  is independently selected from the group consisting of hydrogen, alkyl, alkenyl, haloalkyl, haloalkenyl, aralkyl, aralkenyl, cycloalkyl, cycloalkylalkyl and cycloalkylalkenyl;

$R^7$  is a bond or a straight or branched alkylene or alkenylene chain;

as a single stereoisomer, a mixture of stereoisomers, or as a racemic mixture of stereoisomers; or as a solvate or polymorph; or as a pharmaceutically acceptable salt thereof; for the treatment of hyperproliferative diseases in a mammal.

6. The use of a compound of formula (I):



wherein:

each  $t$  is independently 0, 1 or 2;

$a$  is 1 to 4;

$b$  is 1 to 4;

each  $R^1$  and each  $R^2$  is independently selected from the group consisting of hydrogen, alkyl, alkenyl, aryl, aralkyl, aralkenyl, halo, haloalkyl, haloalkenyl, nitro, cyano, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclalkyl,  $-OR^5$ ,  $-C(O)OR^5$ ,  $-C(O)N(R^5)_2$ ,  $-N(R^5)_2$ ,  $-N(R^5)C(O)OR^6$ ,  $-N(R^5)C(O)R^5$ ,  $-R^7-N=N-O-R^6$ ,  $-S(O)_pR^5$  (where  $p$  is 0 to 2), and  $-S(O)_pN(R^5)_2$  (where  $p$  is 0 to 2);

$R^3$  is hydrogen, alkyl, alkenyl, aryl, aralkyl, aralkenyl, haloalkyl, haloalkenyl, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclalkyl,  $-C(O)R^5$ ,  $-C(O)N(R^5)_2$ ,  $-S(O)_pR^5$  (where  $p$  is 0 to 2), or  $-S(O)_pN(R^5)_2$  (where  $p$  is 0 to 2);

$R^4$  is a straight or branched alkylene or alkenylene chain containing 1 to 4 carbon atoms, wherein each carbon in the chain can be replaced by a heteroatom selected from nitrogen, oxygen and sulfur, and wherein each carbon or sulfur atom in the chain can be optionally oxidized, and wherein each carbon in the chain can be optionally substituted by one or two substituents independently selected from the group consisting of hydrogen, alkyl, alkenyl, aryl, aralkyl, aralkenyl, halo, haloalkyl, haloalkenyl, nitro, cyano, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclalkyl,  $-OR^5$ ,  $-C(O)OR^5$ ,  $-C(O)N(R^5)_2$ ,  $-N(R^5)_2$ ,  $-N(R^5)C(O)OR^6$ ,  $-N(R^5)C(O)R^5$ ,  $-R^7-N=N-O-R^6$ ,  $-S(O)_pR^5$  (where  $p$  is 0 to 2), and  $-S(O)_pN(R^5)_2$  (where  $p$  is 0 to 2), and each nitrogen in the chain can be optionally substituted by alkyl, alkenyl, aryl, aralkyl, aralkenyl, haloalkyl, haloalkenyl, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclalkyl,  $-C(O)R^5$ ,  $-C(O)N(R^5)_2$ ,  $-S(O)_pR^5$  (where  $p$  is 0 to 2), and  $-S(O)_pN(R^5)_2$  (where  $p$  is 0 to 2);

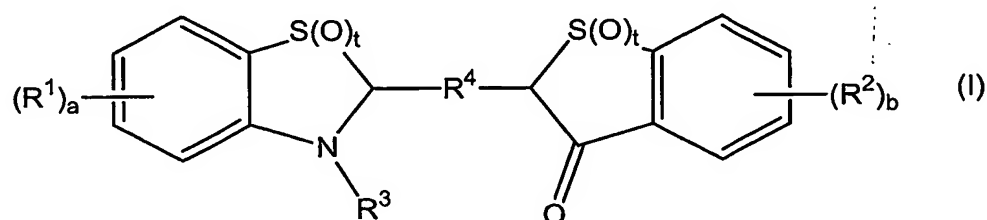
each  $R^5$  is independently selected from the group consisting of hydrogen, alkyl, alkenyl, haloalkyl, haloalkenyl, aryl, aralkyl, aralkenyl, cycloalkyl, cycloalkylalkyl and cycloalkylalkenyl;

each  $R^6$  is independently selected from the group consisting of hydrogen, alkyl, alkenyl, haloalkyl, haloalkenyl, aralkyl, aralkenyl, cycloalkyl, cycloalkylalkyl and cycloalkylalkenyl;

$R^7$  is a bond or a straight or branched alkylene or alkenylene chain;  
 as a single stereoisomer, a mixture of stereoisomers, or as a racemic mixture of stereoisomers; or as a solvate or polymorph; or as a pharmaceutically acceptable salt thereof;  
 for the treatment of a disorder associated with hyperproliferation or tissue remodelling or repair.

7. The use according to any one of Claims 1-6 wherein the mammal is a human.

8. A use of a compound of formula (I):



wherein:

each  $t$  is independently 0, 1 or 2;

$a$  is 1 to 4;

$b$  is 1 to 4;

each  $R^1$  and each  $R^2$  is independently selected from the group consisting of hydrogen, alkyl, alkenyl, aryl, aralkyl, aralkenyl, halo, haloalkyl, haloalkenyl, nitro, cyano, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclylalkyl,  $-OR^5$ ,  $-C(O)OR^5$ ,  $-C(O)N(R^5)_2$ ,  $-N(R^5)_2$ ,  $-N(R^5)C(O)OR^6$ ,  $-N(R^5)C(O)R^5$ ,  $-R^7-N=N-O-R^6$ ,  $-S(O)_pR^5$  (where  $p$  is 0 to 2), and  $-S(O)_pN(R^5)_2$  (where  $p$  is 0 to 2);

$R^3$  is hydrogen, alkyl, alkenyl, aryl, aralkyl, aralkenyl, haloalkyl, haloalkenyl, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclylalkyl,  $-C(O)R^5$ ,  $-C(O)N(R^5)_2$ ,  $-S(O)_pR^5$  (where  $p$  is 0 to 2), or  $-S(O)_pN(R^5)_2$  (where  $p$  is 0 to 2);

$R^4$  is a straight or branched alkylene or alkenylene chain containing 1 to 4 carbon atoms, wherein each carbon in the chain can be replaced by a heteroatom selected from nitrogen, oxygen and sulfur, and wherein each carbon or sulfur atom in the chain can be optionally oxidized, and wherein each carbon in the chain can be optionally substituted by one or two substituents independently selected from the group consisting of hydrogen, alkyl, alkenyl, aryl, aralkyl, aralkenyl, halo, haloalkyl, haloalkenyl, nitro, cyano, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclylalkyl,  $-OR^5$ ,  $-C(O)OR^5$ ,  $-C(O)N(R^5)_2$ ,  $-N(R^5)_2$ ,

$-N(R^5)C(O)OR^6$ ,  $-N(R^5)C(O)R^5$ ,  $-R^7-N=N-O-R^6$ ,  $-S(O)_pR^5$  (where  $p$  is 0 to 2), and  $-S(O)_pN(R^5)_2$  (where  $p$  is 0 to 2), and each nitrogen in the chain can be optionally substituted by alkyl, alkenyl, aryl, aralkyl, aralkenyl, haloalkyl, haloalkenyl, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclylalkyl,  $-C(O)R^5$ ,  $-C(O)N(R^5)_2$ ,  $-S(O)_pR^5$  (where  $p$  is 0 to 2), and  $-S(O)_pN(R^5)_2$  (where  $p$  is 0 to 2);

each  $R^5$  is independently selected from the group consisting of hydrogen, alkyl, alkenyl, haloalkyl, haloalkenyl, aryl, aralkyl, aralkenyl, cycloalkyl, cycloalkylalkyl and cycloalkylalkenyl;

each  $R^6$  is independently selected from the group consisting of hydrogen, alkyl, alkenyl, haloalkyl, haloalkenyl, aralkyl, aralkenyl, cycloalkyl, cycloalkylalkyl and cycloalkylalkenyl;

$R^7$  is a bond or a straight or branched alkylene or alkenylene chain;

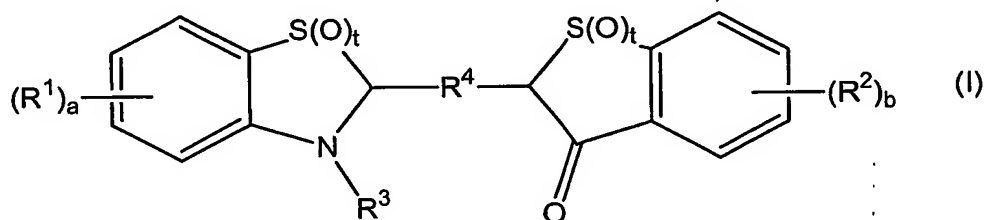
as a single stereoisomer, a mixture of stereoisomers, or as a racemic mixture of stereoisomers; or as a solvate or polymorph; or as a pharmaceutically acceptable salt thereof,

for the treatment of a mammalian cell, wherein the use comprises contacting the compound of formula (I) to a mammalian cell and the compound of formula (I) is capable of inhibiting the activity of PTPN12 and/or PTPN2 within the mammalian cell.

9. The use of Claim 8 wherein the mammalian cell is treated *in vitro*.
10. The use of Claim 8 wherein the mammalian cell is treated *in vivo*.
11. The use of Claim 8 wherein the inhibition of activity results in a reduction of cell adhesion.
12. The use of Claim 8 wherein the inhibition of activity results in a reduction of cell division.
13. The use of Claims 8, wherein the inhibition of activity results in a reduction of cell migration.
14. The use of Claims 8, wherein the inhibition of activity results in control of tumor growth.
15. The use of Claim 8 wherein the inhibition of activity results in control of

lymphocyte activation.

16. A pharmaceutical composition useful in treating cancer or inflammation in a human, wherein the pharmaceutical composition comprises a pharmaceutically acceptable carrier, diluent or excipient and a compound of formula (I):



wherein:

each  $t$  is independently 0, 1 or 2;

$a$  is 1 to 4;

$b$  is 1 to 4;

each  $R^1$  and each  $R^2$  is independently selected from the group consisting of hydrogen, alkyl, alkenyl, aryl, aralkyl, aralkenyl, halo, haloalkyl, haloalkenyl, nitro, cyano, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclylalkyl,  $-OR^5$ ,  $-C(O)OR^5$ ,  $-C(O)N(R^5)_2$ ,  $-N(R^5)_2$ ,  $-N(R^5)C(O)OR^6$ ,  $-N(R^5)C(O)R^5$ ,  $-R^7-N=N-O-R^6$ ,  $-S(O)_pR^5$  (where  $p$  is 0 to 2), and  $-S(O)_pN(R^5)_2$  (where  $p$  is 0 to 2);

$R^3$  is hydrogen, alkyl, alkenyl, aryl, aralkyl, aralkenyl, haloalkyl, haloalkenyl, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclylalkyl,  $-C(O)R^5$ ,  $-C(O)N(R^5)_2$ ,  $-S(O)_pR^5$  (where  $p$  is 0 to 2), or  $-S(O)_pN(R^5)_2$  (where  $p$  is 0 to 2);

$R^4$  is a straight or branched alkylene or alkenylene chain containing 1 to 4 carbon atoms, wherein each carbon in the chain can be replaced by a heteroatom selected from nitrogen, oxygen and sulfur, and wherein each carbon or sulfur atom in the chain can be optionally oxidized, and wherein each carbon in the chain can be optionally substituted by one or two substituents independently selected from the group consisting of hydrogen, alkyl, alkenyl, aryl, aralkyl, aralkenyl, halo, haloalkyl, haloalkenyl, nitro, cyano, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclylalkyl,  $-OR^5$ ,  $-C(O)OR^5$ ,  $-C(O)N(R^5)_2$ ,  $-N(R^5)_2$ ,  $-N(R^5)C(O)OR^6$ ,  $-N(R^5)C(O)R^5$ ,  $-R^7-N=N-O-R^6$ ,  $-S(O)_pR^5$  (where  $p$  is 0 to 2), and  $-S(O)_pN(R^5)_2$  (where  $p$  is 0 to 2), and each nitrogen in the chain can be optionally substituted by alkyl, alkenyl, aryl, aralkyl, aralkenyl, haloalkyl, haloalkenyl, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclylalkyl,  $-C(O)R^5$ ,  $-C(O)N(R^5)_2$ ,  $-S(O)_pR^5$  (where  $p$  is 0 to 2), and



$-S(O)_pN(R^5)_2$  (where p is 0 to 2);

each  $R^5$  is independently selected from the group consisting of hydrogen, alkyl, alkenyl, haloalkyl, haloalkenyl, aryl, aralkyl, aralkenyl, cycloalkyl, cycloalkylalkyl and cycloalkylalkenyl;

each  $R^6$  is independently selected from the group consisting of hydrogen, alkyl, alkenyl, haloalkyl, haloalkenyl, aralkyl, aralkenyl, cycloalkyl, cycloalkylalkyl and cycloalkylalkenyl;

$R^7$  is a bond or a straight or branched alkylene or alkenylene chain;

as a single stereoisomer, a mixture of stereoisomers, or as a racemic mixture of stereoisomers; or as a solvate or polymorph; or as a pharmaceutically acceptable salt thereof.

17. The use or pharmaceutical composition of any one of Claims 1-16 wherein the compound of formula (I) is a compound of formula (I) wherein:

$R^4$  is selected from the group consisting of the following:

$=C(R^5)-C(R^5)=C(R^5)-C(R^5)=$ ,  
 $=C(R^5)-$ ,  
 $=C(R^5)-C(R^5)=$ ,  
 $-C(R^5)=C(R^5)-$ ,  
 $-C(R^5)_2-C(R^5)=$ ,  
 $-[C(R^5)_2]_n-$  (where n is 1 to 4),  
 $=C(R^5)-C(R^5)_2-C(R^5)=$ ,  
 $-C(R^5)_2-C(R^5)_2-C(R^5)=$ ,  
 $-C(R^5)=C(R^5)-C(R^5)_2-$ ,  
 $=C(R^5)-N(R^5)-N=$ ,  
 $-[C(R^5)_2]_m-N(R^5)-N=$  (where m is 1 or 2), and  
 $-C(R^5)=N-N(R^5)-$ ; and

each  $R^5$  is independently selected from the group consisting of hydrogen, alkyl, alkenyl, haloalkyl, haloalkenyl, aryl, aralkyl, aralkenyl, cycloalkyl, cycloalkylalkyl and cycloalkylalkenyl.

18. The use or pharmaceutical composition of any one of Claims 1-16 wherein the compound of formula (I) is a compound of formula (I) wherein  $R^4$  is  $=C(R^5)-C(R^5)=C(R^5)-C(R^5)=$ .

19. The use or pharmaceutical composition of any one of Claims 1-16 wherein the compound of formula (I) is a compound of formula (I) wherein  $R^4$  is  $=C(R^5)-$ .

20. The use or pharmaceutical composition of any one of Claims 1-16 wherein the compound of formula (I) is a compound of formula (I) wherein  $R^4$  is  $=C(R^5)-C(R^5)=$ .
21. The use or pharmaceutical composition of any one of Claims 1-16 wherein the compound of formula (I) is a compound of formula (I) wherein  $R^4$  is  $-C(R^5)=C(R^5)-$ .
22. The use or pharmaceutical composition of any one of Claims 1-16 wherein the compound of formula (I) is a compound of formula (I) wherein  $R^4$  is  $-C(R^5)_2-C(R^5)=$ .
23. The use or pharmaceutical composition of any one of Claims 1-16 wherein the compound of formula (I) is a compound of formula (I) wherein  $R^4$  is  $-[C(R^5)_2]_n-$  (where n is 1 to 4).
24. The use or pharmaceutical composition of any one of Claims 1-16 wherein the compound of formula (I) is a compound of formula (I) wherein  $R^4$  is  $=C(R^5)-C(R^5)_2-C(R^5)=$ .
25. The use or pharmaceutical composition of any one of Claims 1-16 wherein the compound of formula (I) is a compound of formula (I) wherein  $R^4$  is  $-C(R^5)_2-C(R^5)_2-C(R^5)=$ .
26. The use or pharmaceutical composition of any one of Claims 1-16 wherein the compound of formula (I) is a compound of formula (I) wherein  $R^4$  is  $-C(R^5)=C(R^5)-C(R^5)_2-$ .
27. The use or pharmaceutical composition of any one of Claims 1-16 wherein the compound of formula (I) is a compound of formula (I) wherein  $R^4$  is  $=C(R^5)-N(R^5)-N=$ .
28. The use or pharmaceutical composition of any one of Claims 1-16 wherein the compound of formula (I) is a compound of formula (I) wherein  $R^4$  is  $-[C(R^5)_2]_m-N(R^5)-N=$  (where m is 1 or 2).
29. The use or pharmaceutical composition of any one of Claims 1-16 wherein the compound of formula (I) is a compound of formula (I) wherein  $R^4$  is  $-C(R^5)=N-N(R^5)-$ .

30. The use or pharmaceutical composition of any one of Claims 1-29 wherein the compound of formula (I) is a compound of formula (I) wherein at least one  $R^1$  is hydrogen, alkyl, alkenyl, cycloalkyl, cycloalkylalkyl, or cycloalkylalkenyl.

31. The use or pharmaceutical composition of any one of Claims 1-29 wherein the compound of formula (I) is a compound of formula (I) wherein at least one  $R^1$  is aryl, aralkyl, or aralkenyl.

32. The use or pharmaceutical composition of any one of Claims 1-29 wherein the compound of formula (I) is a compound of formula (I) wherein at least one  $R^1$  is halo, haloalkyl, or haloalkenyl.

33. The use or pharmaceutical composition of any one of Claims 1-29 wherein the compound of formula (I) is a compound of formula (I) wherein at least one  $R^1$  is nitro, cyano,  $-R^7-N=N-O-R^6$  or  $-N(R^5)_2$ .

34. The use or pharmaceutical composition of any one of Claims 1-29 wherein the compound of formula (I) is a compound of formula (I) wherein at least one  $R^1$  is  $-OR^5$ ,  $-S(O)_pR^5$  (where p is 0 to 2), or  $-S(O)_pN(R^5)_2$  (where p is 0 to 2).

35. The use or pharmaceutical composition of any one of Claims 1-29 wherein the compound of formula (I) is a compound of formula (I) wherein at least one  $R^1$  is  $-C(O)OR^5$  or  $-C(O)N(R^5)_2$ .

36. The use or pharmaceutical composition of any one of Claims 1-29 wherein the compound of formula (I) is a compound of formula (I) wherein at least one  $R^1$  is  $-N(R^5)C(O)OR^6$  or  $-N(R^5)C(O)R^5$ .

37. The use or pharmaceutical composition of any one of Claims 1-29 wherein the compound of formula (I) is a compound of formula (I) wherein at least one  $R^1$  is heterocyclyl or heterocyclylalkyl.

38. The use or pharmaceutical composition of any one of Claims 1-37 wherein the compound of formula (I) is a compound of formula (I) wherein at least one  $R^2$  is hydrogen, alkyl, alkenyl, cycloalkyl, cycloalkylalkyl, or cycloalkylalkenyl.

39. The use or pharmaceutical composition of any one of Claims 1-37 wherein the compound of formula (I) is a compound of formula (I) wherein at least one  $R^2$  is aryl, aralkyl, or aralkenyl.

40. The use or pharmaceutical composition of any one of Claims 1-37 wherein the compound of formula (I) is a compound of formula (I) wherein at least one  $R^2$  is halo, haloalkyl, or haloalkenyl.

41. The use or pharmaceutical composition of any one of Claims 1-37 wherein the compound of formula (I) is a compound of formula (I) wherein at least one  $R^2$  is nitro, cyano,  $-R^7-N=N-O-R^6$  or  $-N(R^5)_2$ .

42. The use or pharmaceutical composition of any one of Claims 1-37 wherein the compound of formula (I) is a compound of formula (I) wherein at least one  $R^2$  is  $-OR^5$ ,  $-S(O)_pR^5$  (where p is 0 to 2), or  $-S(O)_pN(R^5)_2$  (where p is 0 to 2).

43. The use or pharmaceutical composition of any one of Claims 1-37 wherein the compound of formula (I) is a compound of formula (I) wherein at least one  $R^2$  is  $-C(O)OR^5$  or  $-C(O)N(R^5)_2$ .

44. The use or pharmaceutical composition of any one of Claims 1-37 wherein the compound of formula (I) is a compound of formula (I) wherein at least one  $R^2$  is  $-N(R^5)C(O)OR^6$  or  $-N(R^5)C(O)R^5$ .

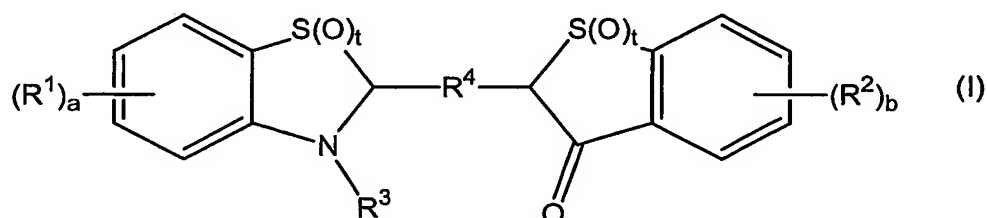
45. The use or pharmaceutical composition of any one of Claims 1-37 wherein the compound of formula (I) is a compound of formula (I) wherein at least one  $R^2$  is heterocyclyl or heterocyclylalkyl.

46. The use or pharmaceutical composition of any one of Claims 1-45 wherein each t is 0.

47. The use or pharmaceutical composition of any one of Claims 1-45 wherein each t is 1.

48. The use or pharmaceutical composition of any one of Claims 1-45 wherein each t is 2.

49. A method of treating cancer in a mammal, which method comprises administering to the mammal in need thereof a therapeutically effective amount of a compound of formula (I):



wherein:

each t is independently 0, 1 or 2;

a is 1 to 4;

b is 1 to 4;

each  $R^1$  and each  $R^2$  is independently selected from the group consisting of hydrogen, alkyl, alkenyl, aryl, aralkyl, aralkenyl, halo, haloalkyl, haloalkenyl, nitro, cyano, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclylalkyl,  $-OR^5$ ,  $-C(O)OR^5$ ,  $-C(O)N(R^5)_2$ ,  $-N(R^5)_2$ ,  $-N(R^5)C(O)OR^6$ ,  $-N(R^5)C(O)R^5$ ,  $-R^7-N=N-O-R^6$ ,  $-S(O)_pR^5$  (where p is 0 to 2), and  $-S(O)_pN(R^5)_2$  (where p is 0 to 2);

$R^3$  is hydrogen, alkyl, alkenyl, aryl, aralkyl, aralkenyl, haloalkyl, haloalkenyl, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclylalkyl,  $-C(O)R^5$ ,  $-C(O)N(R^5)_2$ ,  $-S(O)_pR^5$  (where p is 0 to 2), or  $-S(O)_pN(R^5)_2$  (where p is 0 to 2);

$R^4$  is a straight or branched alkylene or alkenylene chain containing 1 to 4 carbon atoms, wherein each carbon in the chain can be replaced by a heteroatom selected from nitrogen, oxygen and sulfur, and wherein each carbon or sulfur atom in the chain can be optionally oxidized, and wherein each carbon in the chain can be optionally substituted by one or two

substituents independently selected from the group consisting of hydrogen, alkyl, alkenyl, aryl, aralkyl, aralkenyl, halo, haloalkyl, haloalkenyl, nitro, cyano, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclalkyl,  $-OR^5$ ,  $-C(O)OR^5$ ,  $-C(O)N(R^5)_2$ ,  $-N(R^5)_2$ ,  $-N(R^5)C(O)OR^6$ ,  $-N(R^5)C(O)R^5$ ,  $-R^7-N=N-O-R^6$ ,  $-S(O)_pR^5$  (where p is 0 to 2), and  $-S(O)_pN(R^5)_2$  (where p is 0 to 2), and each nitrogen in the chain can be optionally substituted by alkyl, alkenyl, aryl, aralkyl, aralkenyl, haloalkyl, haloalkenyl, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclalkyl,  $-C(O)R^5$ ,  $-C(O)N(R^5)_2$ ,  $-S(O)_pR^5$  (where p is 0 to 2), and  $-S(O)_pN(R^5)_2$  (where p is 0 to 2);

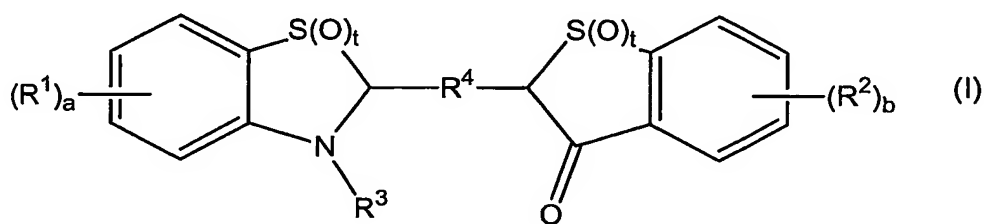
each  $R^5$  is independently selected from the group consisting of hydrogen, alkyl, alkenyl, haloalkyl, haloalkenyl, aryl, aralkyl, aralkenyl, cycloalkyl, cycloalkylalkyl and cycloalkylalkenyl;

each  $R^6$  is independently selected from the group consisting of hydrogen, alkyl, alkenyl, haloalkyl, haloalkenyl, aralkyl, aralkenyl, cycloalkyl, cycloalkylalkyl and cycloalkylalkenyl;

$R^7$  is a bond or a straight or branched alkylene or alkenylene chain;

as a single stereoisomer, a mixture of stereoisomers, or as a racemic mixture of stereoisomers; or as a solvate or polymorph; or as a pharmaceutically acceptable salt thereof.

50. A method of treating inflammation in a mammal, which method comprises administering to the mammal in need thereof a therapeutically effective amount of a compound of formula (I):



wherein:

each t is independently 0, 1 or 2;

a is 1 to 4;

b is 1 to 4;

each  $R^1$  and each  $R^2$  is independently selected from the group consisting of hydrogen, alkyl, alkenyl, aryl, aralkyl, aralkenyl, halo, haloalkyl, haloalkenyl, nitro, cyano, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclalkyl,  $-OR^5$ ,  $-C(O)OR^5$ ,  $-C(O)N(R^5)_2$ ,  $-N(R^5)_2$ ,  $-N(R^5)C(O)OR^6$ ,  $-N(R^5)C(O)R^5$ ,  $-R^7-N=N-O-R^6$ ,  $-S(O)_pR^5$  (where p is 0 to 2), and  $-S(O)_pN(R^5)_2$  (where p is 0 to 2);

$R^3$  is hydrogen, alkyl, alkenyl, aryl, aralkyl, aralkenyl, haloalkyl, haloalkenyl, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclylalkyl,  $-C(O)R^5$ ,  $-C(O)N(R^5)_2$ ,  $-S(O)_pR^5$  (where  $p$  is 0 to 2), or  $-S(O)_pN(R^5)_2$  (where  $p$  is 0 to 2);

$R^4$  is a straight or branched alkylene or alkenylene chain containing 1 to 4 carbon atoms, wherein each carbon in the chain can be replaced by a heteroatom selected from nitrogen, oxygen and sulfur, and wherein each carbon or sulfur atom in the chain can be optionally oxidized, and wherein each carbon in the chain can be optionally substituted by one or two substituents independently selected from the group consisting of hydrogen, alkyl, alkenyl, aryl, aralkyl, aralkenyl, halo, haloalkyl, haloalkenyl, nitro, cyano, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclylalkyl,  $-OR^5$ ,  $-C(O)OR^5$ ,  $-C(O)N(R^5)_2$ ,  $-N(R^5)_2$ ,  $-N(R^5)C(O)OR^6$ ,  $-N(R^5)C(O)R^5$ ,  $-R^7-N=N-O-R^6$ ,  $-S(O)_pR^5$  (where  $p$  is 0 to 2), and  $-S(O)_pN(R^5)_2$  (where  $p$  is 0 to 2), and each nitrogen in the chain can be optionally substituted by alkyl, alkenyl, aryl, aralkyl, aralkenyl, haloalkyl, haloalkenyl, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclylalkyl,  $-C(O)R^5$ ,  $-C(O)N(R^5)_2$ ,  $-S(O)_pR^5$  (where  $p$  is 0 to 2), and  $-S(O)_pN(R^5)_2$  (where  $p$  is 0 to 2);

each  $R^5$  is independently selected from the group consisting of hydrogen, alkyl, alkenyl, haloalkyl, haloalkenyl, aryl, aralkyl, aralkenyl, cycloalkyl, cycloalkylalkyl and cycloalkylalkenyl;

each  $R^6$  is independently selected from the group consisting of hydrogen, alkyl, alkenyl, haloalkyl, haloalkenyl, aralkyl, aralkenyl, cycloalkyl, cycloalkylalkyl and cycloalkylalkenyl;

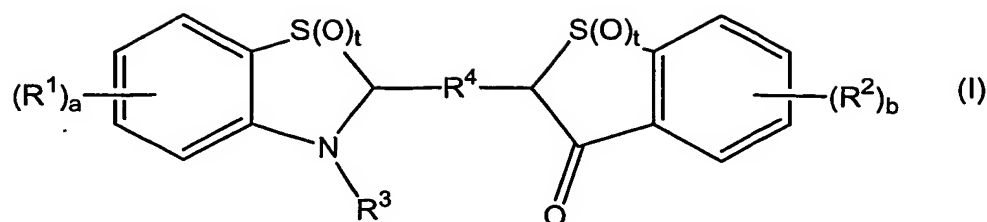
$R^7$  is a bond or a straight or branched alkylene or alkenylene chain;

as a single stereoisomer, a mixture of stereoisomers, or as a racemic mixture of stereoisomers; or as a solvate or polymorph; or as a pharmaceutically acceptable salt thereof.

51. The method according to any one of Claim 49 or 50 wherein the cancer or inflammation is associated with hyperproliferation or tissue remodelling or repair.

52. The method according to any one of Claim 49 or 50 wherein the cancer or inflammation is associated with the activity of an enzyme selected from the group consisting of PTPN12 and PTPN2.

53. A method of treating hyperproliferative disorders in a mammal, which method comprises administering to the mammal in need thereof a therapeutically effective amount of a compound of formula (I):



wherein:

each  $t$  is independently 0, 1 or 2;

$a$  is 1 to 4;

$b$  is 1 to 4;

each  $R^1$  and each  $R^2$  is independently selected from the group consisting of hydrogen, alkyl, alkenyl, aryl, aralkyl, aralkenyl, halo, haloalkyl, haloalkenyl, nitro, cyano, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclalkyl,  $-OR^5$ ,  $-C(O)OR^5$ ,  $-C(O)N(R^5)_2$ ,  $-N(R^5)_2$ ,  $-N(R^5)C(O)OR^6$ ,  $-N(R^5)C(O)R^5$ ,  $-R^7-N=N-O-R^6$ ,  $-S(O)_pR^5$  (where  $p$  is 0 to 2), and  $-S(O)_pN(R^5)_2$  (where  $p$  is 0 to 2);

$R^3$  is hydrogen, alkyl, alkenyl, aryl, aralkyl, aralkenyl, haloalkyl, haloalkenyl, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclalkyl,  $-C(O)R^5$ ,  $-C(O)N(R^5)_2$ ,  $-S(O)_pR^5$  (where  $p$  is 0 to 2), or  $-S(O)_pN(R^5)_2$  (where  $p$  is 0 to 2);

$R^4$  is a straight or branched alkylene or alkenylene chain containing 1 to 4 carbon atoms, wherein each carbon in the chain can be replaced by a heteroatom selected from nitrogen, oxygen and sulfur, and wherein each carbon or sulfur atom in the chain can be optionally oxidized, and wherein each carbon in the chain can be optionally substituted by one or two substituents independently selected from the group consisting of hydrogen, alkyl, alkenyl, aryl, aralkyl, aralkenyl, halo, haloalkyl, haloalkenyl, nitro, cyano, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclalkyl,  $-OR^5$ ,  $-C(O)OR^5$ ,  $-C(O)N(R^5)_2$ ,  $-N(R^5)_2$ ,  $-N(R^5)C(O)OR^6$ ,  $-N(R^5)C(O)R^5$ ,  $-R^7-N=N-O-R^6$ ,  $-S(O)_pR^5$  (where  $p$  is 0 to 2), and  $-S(O)_pN(R^5)_2$  (where  $p$  is 0 to 2), and each nitrogen in the chain can be optionally substituted by alkyl, alkenyl, aryl, aralkyl, aralkenyl, haloalkyl, haloalkenyl, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclalkyl,  $-C(O)R^5$ ,  $-C(O)N(R^5)_2$ ,  $-S(O)_pR^5$  (where  $p$  is 0 to 2), and  $-S(O)_pN(R^5)_2$  (where  $p$  is 0 to 2);

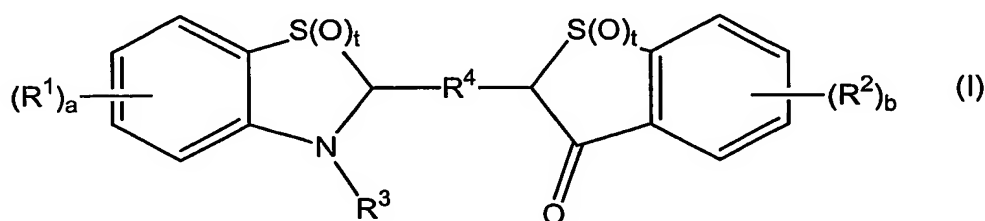
each  $R^5$  is independently selected from the group consisting of hydrogen, alkyl, alkenyl, haloalkyl, haloalkenyl, aryl, aralkyl, aralkenyl, cycloalkyl, cycloalkylalkyl and cycloalkylalkenyl;

each  $R^6$  is independently selected from the group consisting of hydrogen, alkyl, alkenyl, haloalkyl, haloalkenyl, aralkyl, aralkenyl, cycloalkyl, cycloalkylalkyl and cycloalkylalkenyl;



$R^7$  is a bond or a straight or branched alkylene or alkenylene chain;  
 as a single stereoisomer, a mixture of stereoisomers, or as a racemic mixture of stereoisomers; or as a solvate or polymorph; or as a pharmaceutically acceptable salt thereof.

54. A method of treating a mammal having a disorder or condition associated with hyperproliferation and tissue remodelling or repair, wherein said method comprises administering to the mammal having the disorder or condition a therapeutically effective amount of a compound of formula (I):



wherein:

each  $t$  is independently 0, 1 or 2;

$a$  is 1 to 4;

$b$  is 1 to 4;

each  $R^1$  and each  $R^2$  is independently selected from the group consisting of hydrogen, alkyl, alkenyl, aryl, aralkyl, aralkenyl, halo, haloalkyl, haloalkenyl, nitro, cyano, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclylalkyl,  $-OR^5$ ,  $-C(O)OR^5$ ,  $-C(O)N(R^5)_2$ ,  $-N(R^5)_2$ ,  $-N(R^5)C(O)OR^6$ ,  $-N(R^5)C(O)R^5$ ,  $-R^7-N=N-O-R^6$ ,  $-S(O)_pR^5$  (where  $p$  is 0 to 2), and  $-S(O)_pN(R^5)_2$  (where  $p$  is 0 to 2);

$R^3$  is hydrogen, alkyl, alkenyl, aryl, aralkyl, aralkenyl, haloalkyl, haloalkenyl, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclylalkyl,  $-C(O)R^5$ ,  $-C(O)N(R^5)_2$ ,  $-S(O)_pR^5$  (where  $p$  is 0 to 2), or  $-S(O)_pN(R^5)_2$  (where  $p$  is 0 to 2);

$R^4$  is a straight or branched alkylene or alkenylene chain containing 1 to 4 carbon atoms, wherein each carbon in the chain can be replaced by a heteroatom selected from nitrogen, oxygen and sulfur, and wherein each carbon or sulfur atom in the chain can be optionally oxidized, and wherein each carbon in the chain can be optionally substituted by one or two substituents independently selected from the group consisting of hydrogen, alkyl, alkenyl, aryl, aralkyl, aralkenyl, halo, haloalkyl, haloalkenyl, nitro, cyano, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclylalkyl,  $-OR^5$ ,  $-C(O)OR^5$ ,  $-C(O)N(R^5)_2$ ,  $-N(R^5)_2$ ,  $-N(R^5)C(O)OR^6$ ,  $-N(R^5)C(O)R^5$ ,  $-R^7-N=N-O-R^6$ ,  $-S(O)_pR^5$  (where  $p$  is 0 to 2), and  $-S(O)_pN(R^5)_2$

(where p is 0 to 2), and each nitrogen in the chain can be optionally substituted by alkyl, alkenyl, aryl, aralkyl, aralkenyl, haloalkyl, haloalkenyl, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclalkyl,  $-C(O)R^5$ ,  $-C(O)N(R^5)_2$ ,  $-S(O)_pR^5$  (where p is 0 to 2), and  $-S(O)_pN(R^5)_2$  (where p is 0 to 2);

each  $R^5$  is independently selected from the group consisting of hydrogen, alkyl, alkenyl, haloalkyl, haloalkenyl, aryl, aralkyl, aralkenyl, cycloalkyl, cycloalkylalkyl and cycloalkylalkenyl;

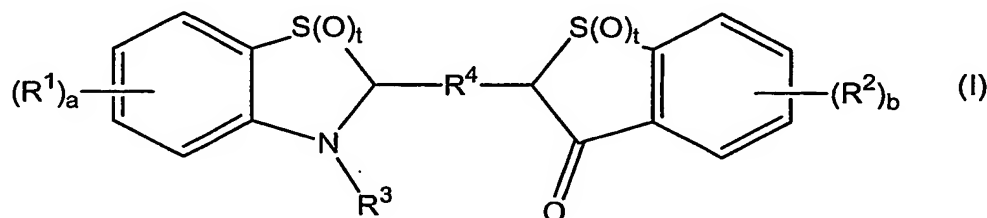
each  $R^6$  is independently selected from the group consisting of hydrogen, alkyl, alkenyl, haloalkyl, haloalkenyl, aralkyl, aralkenyl, cycloalkyl, cycloalkylalkyl and cycloalkylalkenyl;

$R^7$  is a bond or a straight or branched alkylene or alkenylene chain;

as a single stereoisomer, a mixture of stereoisomers, or as a racemic mixture of stereoisomers; or as a solvate or polymorph; or as a pharmaceutically acceptable salt thereof.

55. The method according to any one of Claims 49-54 wherein the mammal is a human.

56. A method of treating a mammalian cell with a compound of formula (I):



wherein:

each t is independently 0, 1 or 2;

a is 1 to 4;

b is 1 to 4;

each  $R^1$  and each  $R^2$  is independently selected from the group consisting of hydrogen, alkyl, alkenyl, aryl, aralkyl, aralkenyl, halo, haloalkyl, haloalkenyl, nitro, cyano, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclalkyl,  $-OR^5$ ,  $-C(O)OR^5$ ,  $-C(O)N(R^5)_2$ ,  $-N(R^5)_2$ ,  $-N(R^5)C(O)OR^6$ ,  $-N(R^5)C(O)R^5$ ,  $-R^7-N=N-O-R^6$ ,  $-S(O)_pR^5$  (where p is 0 to 2), and  $-S(O)_pN(R^5)_2$  (where p is 0 to 2);

$R^3$  is hydrogen, alkyl, alkenyl, aryl, aralkyl, aralkenyl, haloalkyl, haloalkenyl, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclalkyl,  $-C(O)R^5$ ,  $-C(O)N(R^5)_2$ ,  $-S(O)_pR^5$  (where p is 0 to 2), or  $-S(O)_pN(R^5)_2$  (where p is 0 to 2);

$R^4$  is a straight or branched alkylene or alkenylene chain containing 1 to 4 carbon atoms, wherein each carbon in the chain can be replaced by a heteroatom selected from nitrogen, oxygen and sulfur, and wherein each carbon or sulfur atom in the chain can be optionally oxidized, and wherein each carbon in the chain can be optionally substituted by one or two substituents independently selected from the group consisting of hydrogen, alkyl, alkenyl, aryl, aralkyl, aralkenyl, halo, haloalkyl, haloalkenyl, nitro, cyano, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclylalkyl,  $-OR^5$ ,  $-C(O)OR^5$ ,  $-C(O)N(R^5)_2$ ,  $-N(R^5)_2$ ,  $-N(R^5)C(O)OR^6$ ,  $-N(R^5)C(O)R^5$ ,  $-R^7-N=N-O-R^6$ ,  $-S(O)_pR^5$  (where p is 0 to 2), and  $-S(O)_pN(R^5)_2$  (where p is 0 to 2), and each nitrogen in the chain can be optionally substituted by alkyl, alkenyl, aryl, aralkyl, aralkenyl, haloalkyl, haloalkenyl, cycloalkyl, cycloalkylalkyl, cycloalkylalkenyl, heterocyclyl, heterocyclylalkyl,  $-C(O)R^5$ ,  $-C(O)N(R^5)_2$ ,  $-S(O)_pR^5$  (where p is 0 to 2), and  $-S(O)_pN(R^5)_2$  (where p is 0 to 2);

each  $R^5$  is independently selected from the group consisting of hydrogen, alkyl, alkenyl, haloalkyl, haloalkenyl, aryl, aralkyl, aralkenyl, cycloalkyl, cycloalkylalkyl and cycloalkylalkenyl;

each  $R^6$  is independently selected from the group consisting of hydrogen, alkyl, alkenyl, haloalkyl, haloalkenyl, aralkyl, aralkenyl, cycloalkyl, cycloalkylalkyl and cycloalkylalkenyl;

$R^7$  is a bond or a straight or branched alkylene or alkenylene chain;

as a single stereoisomer, a mixture of stereoisomers, or as a racemic mixture of stereoisomers; or as a solvate or polymorph; or as a pharmaceutically acceptable salt thereof,

wherein the method comprises administering the compound of formula (I) to a mammalian cell and the compound of formula (I) is capable of inhibiting the activity of PTPN12 and/or PTPN2 within the mammalian cell.

57. The method of Claim 56 wherein the mammalian cell is treated *in vitro*.

58. The method of Claim 8 wherein the mammalian cell is treated *in vivo*.

59. The method of Claim 56 wherein the inhibition of activity results in a reduction of cell adhesion.

60. The method of Claim 56 wherein the inhibition of activity results in a reduction of cell division.

61. The method of Claims 56, wherein the inhibition of activity results in a reduction of cell migration.

62. The method of Claims 56, wherein the inhibition of activity results in control of tumor growth.

63. The method of Claim 56 wherein the inhibition of activity results in control of lymphocyte activation.

64. The method of any one of Claims 49-63 wherein the compound of formula (I) is a compound of formula (I) wherein:

$R^4$  is selected from the group consisting of the following:

$=C(R^5)-C(R^5)=C(R^5)-C(R^5)=$ ,  
 $=C(R^5)-$ ,  
 $=C(R^5)-C(R^5)=$ ,  
 $-C(R^5)=C(R^5)-$ ,  
 $-C(R^5)_2-C(R^5)=$ ,  
 $-[C(R^5)_2]_n-$  (where n is 1 to 4),  
 $=C(R^5)-C(R^5)_2-C(R^5)=$ ,  
 $-C(R^5)_2-C(R^5)_2-C(R^5)=$ ,  
 $-C(R^5)=C(R^5)-C(R^5)_2-$ ,  
 $=C(R^5)-N(R^5)-N=$ ,  
 $-[C(R^5)_2]_m-N(R^5)-N=$  (where m is 1 or 2), and  
 $-C(R^5)=N-N(R^5)-$ ; and

each  $R^5$  is independently selected from the group consisting of hydrogen, alkyl, alkenyl, haloalkyl, haloalkenyl, aryl, aralkyl, aralkenyl, cycloalkyl, cycloalkylalkyl and cycloalkylalkenyl.

65. The method of any one of Claims 49-63 wherein the compound of formula (I) is a compound of formula (I) wherein  $R^4$  is  $=C(R^5)-C(R^5)=C(R^5)-C(R^5)=$ .

66. The method of any one of Claims 49-63 wherein the compound of formula (I) is a compound of formula (I) wherein  $R^4$  is  $=C(R^5)-$ .

67. The method of any one of Claims 49-63 wherein the compound of formula (I) is a compound of formula (I) wherein  $R^4$  is  $=C(R^5)-C(R^5)=$ .

68. The method of any one of Claims 49-63 wherein the compound of formula (I) is a compound of formula (I) wherein  $R^4$  is  $-C(R^5)=C(R^5)-$ .

69. The method of any one of Claims 49-63 wherein the compound of formula (I) is a compound of formula (I) wherein  $R^4$  is  $-C(R^5)_2-C(R^5)=$ .

70. The method of any one of Claims 49-63 wherein the compound of formula (I) is a compound of formula (I) wherein  $R^4$  is  $-[C(R^5)_2]_n-$  (where n is 1 to 4).

71. The method of any one of Claims 49-63 wherein the compound of formula (I) is a compound of formula (I) wherein  $R^4$  is  $=C(R^5)-C(R^5)_2-C(R^5)=$ .

72. The method of any one of Claims 49-63 wherein the compound of formula (I) is a compound of formula (I) wherein  $R^4$  is  $-C(R^5)_2-C(R^5)_2-C(R^5)=$ .

73. The method of any one of Claims 49-63 wherein the compound of formula (I) is a compound of formula (I) wherein  $R^4$  is  $-C(R^5)=C(R^5)-C(R^5)_2-$ .

74. The method of any one of Claims 49-63 wherein the compound of formula (I) is a compound of formula (I) wherein  $R^4$  is  $=C(R^5)-N(R^5)-N=$ .

75. The method of any one of Claims 49-63 wherein the compound of formula (I) is a compound of formula (I) wherein  $R^4$  is  $-[C(R^5)_2]_m-N(R^5)-N=$  (where m is 1 or 2).

76. The method of any one of Claims 49-63 wherein the compound of formula (I) is a compound of formula (I) wherein  $R^4$  is  $-C(R^5)=N-N(R^5)-$ .

77. The method of any one of Claims 49-76 wherein the compound of formula (I) is a compound of formula (I) wherein at least one  $R^1$  is hydrogen, alkyl, alkenyl, cycloalkyl,

cycloalkylalkyl, or cycloalkylalkenyl.

78. The method of any one of Claims 49-76 wherein the compound of formula (I) is a compound of formula (I) wherein at least one  $R^1$  is aryl, aralkyl, or aralkenyl.

79. The method of any one of Claims 49-76 wherein the compound of formula (I) is a compound of formula (I) wherein at least one  $R^1$  is halo, haloalkyl, or haloalkenyl.

80. The method of any one of Claims 49-76 wherein the compound of formula (I) is a compound of formula (I) wherein at least one  $R^1$  is nitro, cyano,  $-R^7-N=N-O-R^6$  or  $-N(R^5)_2$ .

81. The method of any one of Claims 49-76 wherein the compound of formula (I) is a compound of formula (I) wherein at least one  $R^1$  is  $-OR^5$ ,  $-S(O)_pR^5$  (where p is 0 to 2), or  $-S(O)_pN(R^5)_2$  (where p is 0 to 2).

82. The method of any one of Claims 49-76 wherein the compound of formula (I) is a compound of formula (I) wherein at least one  $R^1$  is  $-C(O)OR^5$  or  $-C(O)N(R^5)_2$ .

83. The method of any one of Claims 49-76 wherein the compound of formula (I) is a compound of formula (I) wherein at least one  $R^1$  is  $-N(R^5)C(O)OR^6$  or  $-N(R^5)C(O)R^5$ .

84. The method of any one of Claims 49-76 wherein the compound of formula (I) is a compound of formula (I) wherein at least one  $R^1$  is heterocyclyl or heterocyclylalkyl.

85. The method of any one of Claims 49-84 wherein the compound of formula (I) is a compound of formula (I) wherein at least one  $R^2$  is hydrogen, alkyl, alkenyl, cycloalkyl, cycloalkylalkyl, or cycloalkylalkenyl.

86. The method of any one of Claims 49-84 wherein the compound of formula (I) is a compound of formula (I) wherein at least one  $R^2$  is aryl, aralkyl, or aralkenyl.

87. The method of any one of Claims 49-84 wherein the compound of formula (I) is

a compound of formula (I) wherein at least one  $R^2$  is halo, haloalkyl, or haloalkenyl.

88. The method of any one of Claims 49-84 wherein the compound of formula (I) is a compound of formula (I) wherein at least one  $R^2$  is nitro, cyano,  $-R^7-N=N-O-R^8$  or  $-N(R^5)_2$ .

89. The method of any one of Claims 49-84 wherein the compound of formula (I) is a compound of formula (I) wherein at least one  $R^2$  is  $-OR^5$ ,  $-S(O)_pR^5$  (where p is 0 to 2), or  $-S(O)_pN(R^5)_2$  (where p is 0 to 2).

90. The method of any one of Claims 49-84 wherein the compound of formula (I) is a compound of formula (I) wherein at least one  $R^2$  is  $-C(O)OR^5$  or  $-C(O)N(R^5)_2$ .

91. The method of any one of Claims 49-84 wherein the compound of formula (I) is a compound of formula (I) wherein at least one  $R^2$  is  $-N(R^5)C(O)OR^6$  or  $-N(R^5)C(O)R^5$ .

92. The method of any one of Claims 49-84 wherein the compound of formula (I) is a compound of formula (I) wherein at least one  $R^2$  is heterocyclyl or heterocyclylalkyl.

93. The method of any one of Claims 49-92 wherein each t is 0.

94. The method of any one of Claims 49-92 wherein each t is 1.

95. The method of any one of Claims 49-92 wherein each t is 2.